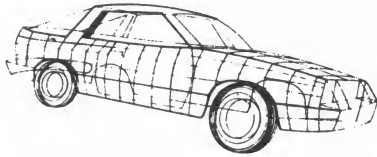


TURNKEY CAD/CAM COMPUTER GRAPHICS



Announcing Our New
1981 U.S. Directory of
Vendors and Systems...

- ☐ Vendor Profiles
- ☐ System Profiles
- ☐ Comparative Charts

A SURVEY AND BUYERS' GUIDE

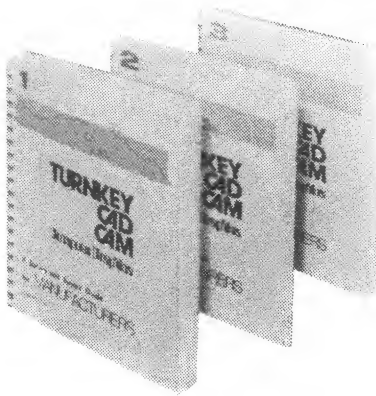
*"CAD/CAM has more potential to radically increase productivity than any other development since electricity..." **

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**National Science Foundat*



At Last! A Tutorial Guide to CAD/CAM Systems!



TURNKEY CAD/CAM COMPUTER GRAPHICS: A SURVEY AND BUYERS' GUIDE FOR MANUFACTURERS is a reliable, cost-effective reference that details the features, capabilities and limitations of CAD/CAM systems and technologies. Designed to save you time and effort, this all-inclusive, easy-to-use Guidebook is filled with decision-making data about industry's vital yet least understood tool—CAD/CAM.

This timely, long-needed Guide provides a single source of data, explanations, and practical guidelines for prospective users, CAD/CAM product designers, consultants, marketing executives, sales representatives, and anyone else who needs a thorough understanding of today's CAD/CAM systems and how they are used to automate engineering design and manufacturing.

Written in clear, jargon-free language, indexed, and organized for easy reference, the Guide is a critical review of systems and technologies that shows you how to prepare a justification and plan the acquisition of a system. It points out the steps you must take to accommodate the organizational impact CAD/CAM will have on your operations and gives you the information you need to avoid very costly mistakes. What's more, the Directory volume will quickly make you aware of what is available, who sells it, what it costs, and help you choose a system to best satisfy your needs. *Don't delay!* Start preparing for the future now.

Part 1 Contemporary CAD/CAM Technology

0-938484-01-X 252 pages, 137 illustrations.

Turn to this practical, comprehensive volume for a clear, in-depth look at today's CAD/CAM technology. You'll find out about the most up-to-date concepts and get a solid foundation in key areas such as applications, software, programming support, data bases, system interconnection, networks, plotters, computers, and workstations. Each Chapter explains the concepts, features and terminology, then critically looks at performance and limitations. And there are dozens of charts, checklists, summaries, and illustrations to help you save *time* and *effort*.

"An illustrated tutorial guide through the computer-graphics maze... [that] contains a wealth of information to help educate neophyte (and possibly even some practicing) CAD/CAMers. Armed with such information... engineers can... derive better value from an initial computer-graphics purchase."

American Machinist

CONTENTS

ORIGINS AND EVOLUTION—Early development • Evolution of non-electrical applications • Today's applications in manufacturing.

BASIC SYSTEM CONFIGURATIONS—Introduction • System configurations.

WORKSTATIONS—Introduction • **DISPLAYS** • Graphic display units • Refresh displays • Raster displays • Storage displays • Text display units • Display hard-copy units • **KEYBOARDS** • Alphanumeric keyboards • Auxiliary keyboards • **FUNCTION MENUS** • Introduction to function menus • Push button function menus • Digitizer function menus • Display function menus • Character recognition function menus • Voice recognition function menus • **DIGITIZERS** • Introduction to digitizers • Large digitizers as primary input devices • Digitizer/plotters as primary interactive devices • **CURSORS CONTROLS** • Introduction to cursor positioning • Light-pen cursor controls • Digitizer-tablet cursor controls • Thumbwheel cursor controls • Trackball cursor controls • Push-button cursor controls.

OUTPUT SUBSYSTEMS—Introduction • Hard-copy graphics plotters • **PEN PLOTTERS** • Introduction to pen plotters • Bed plotters • Drum plotters • Digital plotter technology • Pen plotter controllers • Intelligent or smart plotters • Drawing quality • Pen plotter performance • **ELECTROSTATIC PLOTTERS** • Introduction to electrostatic plotters • Vector to raster conversion • Electrostatic plotter performance • Electrostatic plotter features and characteristics • Electrostatic plotter technology • **COM SYSTEMS** • Introduction to microfilm plotters and COM systems • COM system performance • COM system features and characteristics • **PHOTOPLOTTERS** • Introduction to photoplotters • **PERFORATED TAPE SUBSYSTEMS** • perforated tape

punches • Perforated tape readers • **MAGNETIC TAPE SUBSYSTEMS** • Introduction to magnetic recording tape • Magnetic recording tape standards • Magnetic tape drive features and characteristics.

SYSTEM PROCESSORS—COMPUTERS • Introduction to system processors • Processor features and characteristics • Special purpose graphics processors—pro and con • **DATA STORAGE** • Introduction to on-line storage • Disc storage technology • Disc storage system features and characteristics • Introduction to off-line storage.

CAD/CAM SYSTEM INTERCONNECTION—NETWORKS • Introduction to CAD/CAM system networks • Star, ring, and chain network configurations • Integration with general-purpose data processing • **INTERFACES** • Work station interfaces • CAD/CAM system-to-system interfaces • CAD/CAM system-to-mainframe interfaces.

OPERATING SOFTWARE—Introduction • Operating systems • Data-base management • Utility software.

CAD/CAM SOFTWARE—Introduction • **BASIC GRAPHICS SYSTEM SOFTWARE** • Software structure • Graphics and non-graphics data entry software • Interactive display software • Data management software • Analysis software • Graphics output software • **OPTIONAL GRAPHICS SOFTWARE** • Enhanced graphics and analysis software • Application software • Numerical control.

PROGRAMMING SUPPORT SOFTWARE—Why is programming necessary? • Function menu and macro programming • Programming languages • Programming interfaces • Programming support utilities.

Part 2 Evaluating Today's Turnkey Systems

0-938484-02-8 120 pages, 16 illustrations.

This easy-to-understand blueprint for evaluating and planning a turnkey CAD/CAM purchase steers you to sensible decision-making—from technical reviews to vendor evaluations to CAD/CAM needs analysis to organizational issues to operational questions, manpower savings, and cash flow analysis. You learn about the ramifications of a turnkey purchase... responsibilities of the buyer and seller... hardware and software services... what is normally *not* included, and other pitfalls. You'll find out about the effectiveness of training, the influence on staff morale, the attitude of trade unions, how to use consultants, facilities management and control. Plus, you'll learn how to prepare and evaluate a system justification and financial analysis with step-by-step examples including a net present value analysis that takes into account all system savings and costs, and clearly shows the effects of productivity improvement, training overhead, system availability, depreciation, investment tax credit, and more! Illustrated with real-world examples, all topics are freed from technical jargon and explained in a practical, how-to context. A truly time- and work-saving Guide.

"A valuable reference to aid in the decision to buy a turnkey system..."

Iron Age

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THE TURNKEY APPROACH—Introduction • Responsibility of the vendor • Responsibility of the buyer • Hardware supplied by the vendor • Software supplied by the vendor • Services supplied by the vendor.

THE IMPACT OF CAD/CAM ON THE ORGANIZATION—Introduction • Staffing—are specialists required? • Training—can existing staff be trained? • Attitude of trade unions • Effects on staff morale • Facilities management and control.

EVALUATING A TURNKEY SYSTEM—Introduction • Evalu-

ating the vendor • Evaluating the services • Evaluating the system hardware and software.

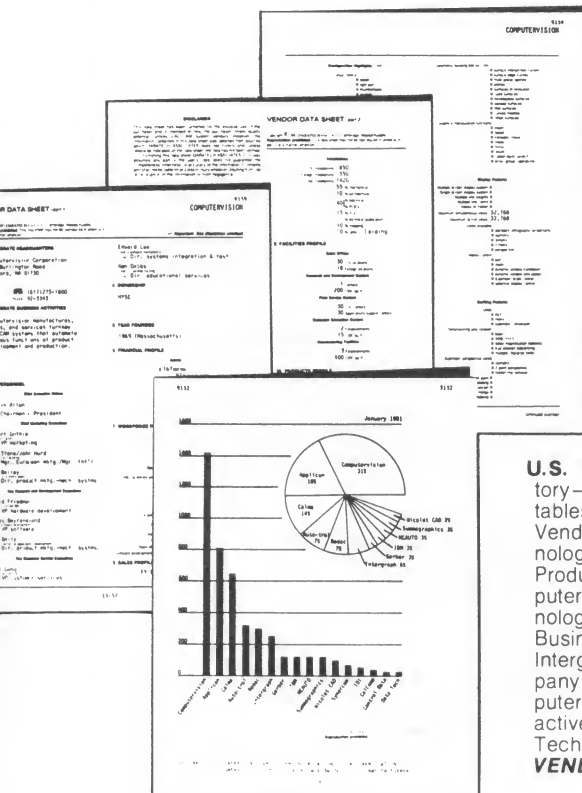
JUSTIFYING THE INVESTMENT—Introduction • Analysis of the CAD/CAM needs of engineering • Analysis of the CAM/CAM system's manpower savings potential.

FINANCIAL ANALYSIS—Introduction • Net investment analysis • Investment tax credit • Differential costs and savings analysis • Sales tax and property tax • Depreciation's tax-shielding effects • Present value analysis.

Part 3 U.S. Directory of Vendors

0-938484-03-6 156 pages, 26 illustrations.

New



This new reference is the most comprehensive Directory yet of companies selling turnkey CAD/CAM systems for mechanical applications. Never before has a CAD/CAM directory presented so much *vital*, decision-making data. It's all here—company profiles, product data, comparative charts. For each company listed you get a financial profile, sales figures, a list of key executives, and a breakdown of existing installations by application—mechanical, architectural, electrical, PCB, IC, technical publishing, mapping. Next, you get the all-important customer service profile that details each company's field service, customer support, education, and user group resources. You'll also find data on R & D and manufacturing capacity. Plus, there are charts and graphs to help you compare sales, installations, price structures, and more! Best of all, there is a wealth of product information so you can quickly focus on the systems that fit your needs. Logically organized, indexed, and easy to use, this benchmark volume is an indispensable resource that will save you precious time and effort and return its cost many times over.

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U.S. TURNKEY CAD/CAM SYSTEM VENDORS—The Directory—its purpose and organization • Users' guide • Comparative tables and charts • **VENDOR DATA SHEETS** • Interpreting Vendor Data Sheets • Applicon Incorporated • Auto-trol Technology Inc. • Broomall Industries, Inc. • California Computer Products, Inc. • Calma—A General Electric Company • Computervision Corporation • Control Data Corporation • Data Technology, Inc. • Gerber Systems Technology, Inc. • International Business Machines Corporation • Information Displays, Inc. • Intergraph Corporation • McDonnell Douglas Automation Company • Manufacturing Consulting Services, Inc. • National Computer Systems, Inc. • Nicolet CAD Corporation • Redac Interactive Graphics, Inc. • Summagraphics Corporation • Synercom Technology, Inc. • Tektronix Inc. • **INDEX OF SYSTEMS AND VENDORS.**



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